Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
CONSTELLATION COMMUNICATIONS, INC.	)	File No.
	)	
For Authority to Construct the ARIES Low Earth Orbit Satellite System in the 1610-1626.5 MHz and the 2483.5-2500 MHz Bands	)	

SATELLITE SYSTEM APPLICATION

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6. The CONSTELLATION Frequency Plan

CONSTELLATION will initially utilize a frequency plan for the ARIES satellites based on a total of 2 MHz being assigned to the initial ARIES satellite system in the L-band and spread spectrum use, on a non-exclusive basis, of 16 MHz at S-band for the links between mobile users and the satellites. The initial ARIES satellites are being designed with a peak capacity of up to 50 two-way voice channels. The ARIES frequency plan is intended to allow the Commission to authorize multiple satellite systems in the RDSS bands, including RDSS systems using the geostationary satellite orbit ("GSO"), such as the European LocStar system, and other LEO systems, such as the TDMA/FDMA IRIDIUM system proposed by Motorola and the spread spectrum system proposed by Ellipsat.

7. The CONSTELLATION Will Serve The Public Interest

The ARIES satellite system has been designed to meet numerous telecommunications requirements that will allow consumers to reap numerous benefits. It ensures that all areas of the world will be provided access to many needed mobile telecommunication services. Because the design of the ARIES system permits multiple satellite systems to operate in the RDSS bands, the ARIES system ensures that the public will receive the benefits of lower costs and innovation that results from competition. The system design also will provide the user the opportunity to purchase a portable satellite receiver at low cost. Additionally, the ARIES approach to frequency assignments in the RDSS bands should enable the Commission to award several licenses and avoid cumbersome administrative processing proceedings. Finally, the ARIES system will provide valuable public safety and emergency services and help to promote U.S. leadership in telecommunications technology and services.

These services will include position determination and reporting, as well as dispatch and two-way telephony, data and facsimile.

Position determination and position reporting will be provided over the ARIES system either by means of doppler ranging on the TDM channel, by including a GPS or Loran circuit board in the user terminal, or by other means currently being tested by CONSTELLATION. Two-way satellite ranging techniques also can be implemented over the ARIES system.

Two-way telephony will be a basic service to be offered over the ARIES system through vehicle mounted and two-way portable user units, with future use planned of pocket-sized handheld units in the system. The ARIES system will provide full interconnection between mobile users anywhere in the United States and the public-switched telephone system, or other private networks. With additional gateway earth stations located in other countries, the ARIES system will be able to provide full interconnection to mobile users on a global basis.

Dispatch voice, with regular position reports and dispatcher controlled data/voice response, will support the requirements of fleet operators (who need to monitor the location and status of the vehicles in their fleets operating over large areas), as well as the public service and safety communities, and will support on-demand two-way access to each vehicle to solve problems and issue instructions. Data/facsimile transmission services will be provided in either direction as part of the same basic network architecture that provides telephony.

The ARIES system will also provide thin-route and lifeline telephone services that will permit users to access the ARIES system for basic or emergency telephone

service at a low basic access charge and low usage rates during non-peak hours. With the low cost anticipated for the ARIES user terminals, subscribers in remote areas not served by landline telephone will be provided with access to the worldwide public switched telephone system at a reasonable price. Typical users could be located on farms or remote exploration sites, recreational vehicles, or in wilderness areas carrying portable satellite telephones. The ARIES system also will be capable of providing immediate access to the public switched telephone network for emergency or distress calls.

Finally, data collection, distribution and control services can be provided on a polled basis using two-way channels, or on a random basis using packetized messaging over a channel configured for signalling operations. This capability will be designed for customers who operate sensor networks or other facilities in remote areas, and have a need for monitoring and data collection capabilities, as well as control of the facilities, at these remote sites.

VI. THE MARKET FOR SATELLITE MOBILE TELECOMMUNICATIONS SERVICES - SYSTEM SIZING

CONSTELLATION's market assessment (see Appendix D) shows robust demand. This analysis indicates that there are nearly 2.9 million domestic and international potential subscribers available for satellite service providers in the RDSS bands. The domestic and international markets for remote site communications, recreational vehicles, trucking, automobiles, boats, planes and traveling business people each have potentially hundreds of thousands of subscribers, allowing for highly focused marketing efforts that will produce substantial revenues soon after system deployment.

implement an economically viable satellite system. This means that several competitive systems can be authorized within the RDSS bands. A competitive marketplace will encourage technical innovation while at the same time minimizing costs and allowing the public to expeditiously benefit from new services. When there are several competitors, it is clear that customer prices will be more closely attuned to cost. Monopoly systems do not always exhibit this characteristic. Additionally, an operator of a competitive system will always be seeking means to upgrade technology in order to provide new or lower cost services to the public. These benefits are well founded in Commission doctrine and should continue to be used for these bands. Multiple entry also will provide the Commission with the opportunity to avoid cumbersome license processing proceedings.

C. The ARIES System Will Enable New and Innovative Telecommunication Services to Be Provided to the Public

The ARIES system will provide a multiplicity of telecommunications services to users in the U.S. and throughout the world. These services will be especially important to individuals living or traveling in remote areas where telecommunication support is rare or non-existent. There are many areas in the world where there is no access to land line or radio telephone service. The ARIES system will enable quick provision of emergency and safety services as well as enable support for national security and other governmental obligations. ARIES also will be capable of providing telecommunications support to natural resource industries which often operate in remote areas. Whether it is the researcher in the remote jungles of Borneo, the oil well worker in Prudhoe Bay, a child lost in the Rocky Mountains, a drug enforcement agent